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CARE OF EYESIGHT DURING SCHOOL LIFE.

AN INTERESTING PAPER READ BEFORE THE COUNTY TEACHERS' ASSOCIATION.

At the Urgent Request of Several Teachers Who Heard the Paper Read Dr. J. M. Kibler Consents to its Publication.

The following paper was read by Dr. James M. Kibler before the meeting of the County Teachers' Association on Saturday, the 10th. inst., and at the urgent request of some of those who heard it, it is published.

THE ADDRESS.

I have been called upon to address you today upon a subject which until quite recent years received no attention from any of our public schools, North or South.

The hygienic laws governing other organs of the body have justly received proper consideration; and the industrial hygiene regulating the school room and premises as to filth, ill ventilated class rooms, overheated rooms, draughts of cold air, accumulation of foul gases, etc., have commanded the closest attention of the public boards of all our schools.

Advice as to an overworked brain, a frail body, a slowly developed brain or body; rules as to the best methods of imparting instruction to the pupils; the question as to the number of school hours per day, and whether it is better to have one long session with intervals of two short recesses, or two sessions with a long interval for noon or dinner; the question of how many pupils one teacher can manage, or when a room may be considered overcrowded; the question of co education etc., have all received their due consideration from this association.

Health rules as to the proper care of the mouth and teeth and skin, the proper clothing to wear in doors and out doors, food and diet, how to preserve the throat and voice, how to keep good hearing, have been time and again given to all grades of school life from the elementary schools to the special technical colleges, but rarely ever does one see advice given upon the proper care of the eyesight during school life.

No subject is of more vital importance.

Upon good eyesight often depends the success or failure of a pupil, not only during school life, but also his whole life afterwards.

The child may have ever so bad vision and be backward in learning, and fall behind his class and become discouraged, and never know why he cannot compete with his fellows.

When we remember that whatever he learns must be gotten from proper and careful reading, and this cannot be had with imperfect vision, we are not surprised at his fate.

I shall offer a few suggestions for the proper guidance of the teacher, and hope that from them some good may result.

Before doing so, however, it is necessary that at least an elementary knowledge of the anatomy and physiology of the eye, and the simplest laws of optics be understood.

The eyeball so delicately constructed and adjusted, resting in a bony socket for protection from outside blows, surrounded by fatty tissue and the muscles which control its movements, covered and shaded by its lids and lashes and brows to shield it from dust and an excess of light, bathed in its own tears from the lachrymal gland, placed in the forefront of the head as pilot looking out for the safety of the body, is one of the greatest wonders of Nature.

It is nearly spherical in form and about one inch in diameter.

For convenience of description it is sometimes spoken of as consisting of three membranes or coats and three humors.

The external or fibrous coat is strong, tough and elastic. It maintains the form of the ball and protects its contents and furnishes the attachments of the external muscles which move it.

The sclerotic which forms about four fifths of this coat and the posterior portion of the ball is commonly known as the "white of the eye."

The anterior one-fifth or cornea is transparent and joined to the sclerotic very much as a watch crystal is set in a watch. On casually looking at the eye the observer does not notice it as the colored iris is seen through it on account of its transparency. The coat may be plainly seen by taking a side view of the eyeball.

The second coat of the eyeball from without is the vascular coat composed of the choroid behind and the iris in front. The choroid is a net work of blood vessels and pigment cells covering the inner side of the sclerotic and posterior surface of the iris. The use of this dark surface is to absorb the excess of light that may gain entrance into the eye. The iris forms a curtain behind the cornea, or front of the eye, to the margins of which it is attached, and contains the pupil or window through which light is transmitted to the retina. It is the iris that gives to the eye its color and beauty of expressions at its marginal surface are attached two sets of muscles—the ciliary muscles—which contract or dilate the pupil and determine the amount of light admitted.

The internal or third coat of the eye is known as the retina. This is the most important membrane of the eye, and in fact all the remainder of the eye is subservient to it. For it is upon this that light impinges, and images are formed and we are said to see.

This membrane is only one hundred-and-twentieth of an inch in thickness, yet it has been divided by the microscope into nearly a dozen layers, the most important of which are the internal and external.

The internal is the conductive layer, while the external is the perceptive layer that receives the sensation of light and communicates it to the brain through the optic nerve. This nerve can take cognizance only of the sensation of light, and hence feels no pain. Any irritation of it produces a flash of light, and one may be made to "see stars" when the eye receives a severe blow. Here physiology and psychology are closely allied. How can material substance communicate an impression to a material brain and psychological phenomena result?

We shall now speak of the three humors of the eye. They are the aqueous, crystalline and vitreous.

The aqueous humor is a watery fluid filling the anterior chamber of the eye, between the cornea and the crystalline lens.

The crystalline humor, or lens, is a firm, transparent semi-solid substance, held in a transparent elastic capsule which maintains its form that of a double convex lens. It is upon the shape and density of the lens that accuracy of vision depends.

The vitreous humor fills the posterior chamber of the eye. It is colorless and transparent and is well adapted to form a cushion for the delicate retina, and preserve the firmness and elasticity of the eyeball.

"The eye is a wonderful example of skilful packing, combining firmness, elasticity, compactness, mobility and safety in a degree of perfection that can never be approached by art and is perhaps scarcely equalled elsewhere in nature."

Having given an elementary description of the anatomy of the different parts of the eye, we shall now consider some of their functions or physiology. Before the astronomer, Kepler, discovered that the eye is nothing more than a photographer's camera, the act of seeing was veiled in obscure mystery. In the camera the images of objects fall upon a chemically sensitive plate, in the eye they fall upon the sensitively nervous retina. In the eye the sides of the camera are represented by the sclerotic, the darkened inner surface by the choroid, the opening by the pupil, the convex lens by the cornea and crystalline lens and the surface to receive the image by the retina. To understand the physiology of

vision, however, one must have a knowledge of the laws of refraction of light. It is a well known fact in optics that a ray of light penetrating a medium of lesser or greater density than the one from which it emerges changes its direction, or is refracted. A number of parallel rays passing through a medium of different density are refracted, but emerge still parallel. But if the surfaces of the medium are curved the rays emerge divergent or convergent, just as the prism is concave or convex. Hence, rays of light passing through the crystalline lens of the eye are brought to a focus on the sensitive retina behind. Here the image of the external object is made in an inverted position.

Thus you observe we do not see objects, but their images; and we learn from experience that the object is not upside down, but only the image.

The more convex the lens the shorter will be its focusing power. The ciliary muscles have the property of rendering the lens more convex or less convex according as we are looking at near or distant objects.

This is called power of accommodation. The abuse of this faculty is one of the most fruitful sources of evil in school life.

In the above remarks we have been speaking of the perfectly formed, or emmetropic, eye—one that is able to focus parallel rays of light accurately upon the retina.

There are a great many optical defects that arise during school life which should be readily recognized by the teacher, and recommended for correction.

The most common of these are long sight, or hypermetropia; short sight, or myopia, and astigmatism. Long sight is produced by the axis of the eyeball, the distance from the cornea to the retina, being less than the focal distance of the eye, and hence the image falls behind the retina.

This condition is known as "flat eye." The same results are seen in old age, only the cause is due to an increased density and convexity of the lens.

This condition can be relieved by a convex glass, which will bring the rays of light more quickly to a focus.

Just the opposite condition is met with in near sight. Here the axis is too long and the image is focused in front of the retina. Of course a concave lens will correct such malformation. This is one of the most serious conditions in errors of refraction. If allowed to go on unaided most appalling results may happen and the child's vision become a wreck.

It is the most frequent defect met with in the young, and as the eyes are soft and elastic, the distortion grows worse and worse as work is imposed upon them. The increase in such cases is very rapid from the elementary to the high schools. In some countries, as Germany, it is more often met with than in others, and more often seen in cities than in towns or rural districts.

In the remarks upon long sight and short sight it was assumed that the eye remained stationary. But this is not true in nature, as the ciliary muscles are constantly at work rendering the crystalline lens more or less convex as the case may need or the distance of the object looked at may require. This brings about the strain upon defective eyes, and a train of symptoms such as headache, pains in the eyes and general fatigue follow.

There remains yet one other condition common among those who have defective vision. This is known as astigmatism. The normal shape of the cornea is that of a section of a sphere, and any variation from this uniformity in curvature brings about astigmatism, or different focal distances for the different meridians. The trouble can only be corrected by glasses made from a cylinder and set in frames so adjusted that the meridians will all be brought to the same focus.

If I have spoken at length and proved tedious I have no apology

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Dire Necessity Now Reigns In Martinique.

SURVIVORS OF THE CATASTROPHE ARE IN URGENT NEED.

Prompt Relief Measures Taken. An American Consul Gives a Description of the Awful Scene at St. Pierre.

Fort de France, Island of Martinique, May 12.—It now seems to be generally admitted that about 30,000 persons lost their lives as a result of the outbreak of the Mont Pelee volcano, at St. Pierre, on Thursday last. Careful investigation by competent government officials show the earlier reports of the Associated Press were accurate.

Briefly put, last Thursday morning the city of St. Pierre disappeared within five minutes in a whirlwind, fire vomiting from Mount Pelee; 30,000 persons were instantly and horribly killed and the volcano, whose crater for more than 50 years had been occupied by a quiet lake in which picnic parties bathed, suddenly discharged a torrent of fiery mud, which rolled toward the sea, engulfing everything before it. Then the last of cable communication was broken, and the doomed city was isolated from the world.

The repair ship Grappler was lost with all on board, as was the French vessel Tamaya. There were 18 or 20 vessels in the roadstead at the time of the disaster. The British steamer Roddam had anchored but Capt. Freedman, although horribly burned, managed to keep on t' a bridge of his vessel. Everybody on the Roddam's deck was killed instantly, but with the assistance of his third engineer and a fireman, who were wounded, the captain brought his vessel to St. Lucia. Many persons tried to reach the Roddam, but in vain. The United States vice consul at St. Pierre, Amadee Testart, reached the deck of the Roddam only to fall back in the sea dead.

Three hours exploration of the ruins of St. Pierre resulted in the finding of no trace of the American consulate. Council Thomas T. Prantiss, his wife and two daughters, are undoubtedly dead. That quarter of this city is still a vast mass of blazing ruins. Nor has any trace been found of James Japp, the British consul. Mr. Japp had a large family at St. Pierre.

CONSUL AYMÉ'S STORY.

The American consul at Guadeloupe, Louis H. Ayme, has reached the desolate spot where St. Pierre stood and confirm the awful story in all its essential details.

From an interview with Col. Ayme, who is a trained American newspaper man, a correspondent of the Associated Press learned the following fact:

Thursday morning the inhabitants of the city awoke to find heavy clouds shrouding the Mount Pelee crater. All day Wednesday horrid detonations had been heard. These were echoed from St. Thomas on the north to Barbadoes on the south. The cannonading ceased on Wednesday night the fine ashes fell like rain on St. Pierre. The inhabitants were alarmed, but Gov. Monttett, who had arrived at St. Pierre the evening before, did everything possible to allay the panic. The British steamer Roraima reached St. Pierre on Thursday with 10 passengers, among whom were Mrs. Stokes and her three children and Mrs. H. J. Ince. They were watching the rain of fashies, when, with a frightful roar and terrific electric discharges, a cyclone of fire mud and steam swept down from the crater over the town and bay, sweeping all before it and destroying the fleet or vessels at anchor off the shore. There the accounts of the catastrophe so far obtainable cease.

THE DEAD IN THE SEA.

Thirty thousand corpses are strewn about, buried in the ruins of St. Pierre, or else floating, gnawed by sharks, in the surrounding seas. Twenty-eight charred, half dead human bodies were brought here. Sixteen of them are already dead, and only four of the whole number are expected to recover.

A VISIT TO THE SCENE.

The Associated Press steamer, chartered in Guadeloupe, near Martinique at 6:30 Sunday morning. The island with its lofty hills was hid behind a huge veil of violet or leaden colored haze. Enormous quantities of the wreckage of large and small ships and houses strewn the surface of the sea. Huge trees and too often bodies with flocks of sea gulls soaring above and hideous sharks fighting about them, were floating here and there. From behind the volcanic veil came blasts of hot wind, mingled with others ice cold.

At Le Precheur, five miles north of St. Pierre, Canoes with men and women, frantic to get away, begged for a passage on the steamer.

The whole north end of the island was covered with a silver gray coating of ashes resembling dirty snow. Furious blasts of fire, ashes and mud swept over the steamer but finally St. Pierre was reached.

The city of St. Pierre stretched nearly two miles along the water front and half a mile back to the cliff at the base of the volcano. The houses of the richer French families were built of stone.

The still smoking volcano towered above the ash covered hills. The ruins were burning in many places and frightening odors of burned flesh filled the air.

With great difficulty a landing was effected. Not one house was left intact. Viscid heaps of mud, of brighter ashes or piles of volcanic stones, were seen on every side. The streets could hardly be traced. Here and there amid the ruins were heaps of corpses. Almost all the faces were downward.

In one corner 22 bodies of men women and children were mingled with in one awful mass, arms and legs protruding as the hapless 'ing fell in the last struggles of death's agony.

Through the middle of the old Place Bertin ran a tiny stream, the remains of the river Gayave. Great trees with roots upward and scorched with fire, were strewn in every direction. Huge blocks and still hot stones were scattered about. From under one large stone the arm of a white woman protruded. Most notable was the utter silence and the awful, overpowering stench from the thousands of dead.

DEATH FROM SUFFOCATION.

Careful inspection showed that the fiery stream which so completely destroyed St. Pierre must have been composed of poisonous gases, which instantly suffocated every one who inhaled them, and of other gases burning furiously, for nearly all the victims had their hands covering their mouths or were in some other attitude, showing that they had sought relief from suffocation. All the bodies are carbonized or roasted.

A. G. Austen, the manager of the Colonial Bank of Barbadoes, landed at St. Pierre with a party from the British royal mail steamer Solent. He found the bank clock stopped at some minutes before 8 o'clock. A horse and a buggy and a policeman were in a dead group at the door.

CONGRESS APPROPRIATES \$200,000 FOR RELIEF OF DESTITUTE—PRESIDENT NAMED \$500,000.

Washington, May 12.—The house today passed by an overwhelming vote a bill granting \$500,000 for the relief of the sufferers in the great calamity in the West Indies. The bill was a substitute to the relief measure passed by the senate, which carried \$100,000, the increase having followed the receipt of a message from the president setting forth the magnitude of the calamity and urging an appropriation of \$500,000. A special meeting of the appropriation committee was held to facilitate action on the bill and it was reported to the house within a short time after the receipt of the President's message. In presenting the measure, Mr. Homenway, the acting chairman of the appropriation committee, explained that the amount was limited to \$200,000, owing to

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TEXT OF FINDING IN THE DOMINICK CASE.

OFFICIAL REPORT FILED WITH THE GOVERNOR TUESDAY.

Summary of Facts Presented—Committee Tell why it Held Mr. Dominick Guilty of Wrong Doing.

[The State, 13th.]

The documents giving the findings of the legislative investigation committee in the case of Representative Dominick of Newberry was yesterday filed with the governor for transmission to the general assembly at its next session. The document is given herewith in full so as to complete the record. It reads as follows:

To the President of the Senate and Speaker of the House of Representatives of the State of South Carolina:

The sub-committee of the judiciary committees of the senate and of the house, to whom was referred the investigation pursuant to a concurrent resolution passed on the 22nd day of February, 1902, which provides: "Whereas it appears from the statements of the conferees on the part of the senate upon the differences between the two houses upon a bill to amend an act entitled 'An act to provide for the county government of the various counties of this State,' approved on the 6th day of March, 1899, that the report of the committee on free conference upon said bill was signed under misapprehension induced by misrepresentations made to them by one of the conferees on the part of the house of representatives; now be it resolved by the senate, the house of representatives concurring, that it be referred to the judiciary committees of the senate and of the house or a sub-committee appointed by them to inquire into and investigate the circumstances surrounding the report of said conference committee on said bill, with power to sit during the recess and to send for persons and papers and examine the same, and to employ a stenographer; and that said committee do report their findings to the next general assembly," respectfully reports that the judiciary committees of the senate and house met and appointed a sub-committee of six members, three from the judiciary committee of the senate, consisting of Senators Hay, Graydon and 'ayfield, and three from the judiciary committee of the house, consisting of Representatives Bacot, Croft and Gaston. That sub-committee called a meeting to be held at 12 m. on Wednesday, the 7th day of May, 1902, in Columbia; and pursuant to said call, said committee organized and took the testimony of all members of the senate and the house who were on the conference committees, together with the testimony of such other persons who knew anything of the matter, so far as said committee could ascertain, which said testimony is herewith reported. That pursuant to said resolution, we find that the free conference committee report was not signed because of any misrepresentations made on the part of any member of said committee, or other member of the general assembly, or any other person, but that two members of the senate free conference committee did not understand the scope and extent of the amendments which were proposed to the bill, as provided in the free conference committee report; but that no one imputed unworthy motives of Mr. Dominick, who secured the signing of the report.

That as to the circumstances surrounding the report of the said conference committee on said bill, we respectfully report that we find that a bill was pending in the general assembly in the session of 1901 to amend section 15 of what is commonly known as the dispensary bill, so as to "prevent the manufacture and selling of liquor within two miles of any church or public school house," and that on a free conference committee a proviso was

added so as to amend said bill, to give the power to the State Board of Directors to grant "privileges for the erection and operation of breweries, distilleries and establishments for the bottling and sale of beer, styled beer dispensaries, in cities of over 20,000 population, to be operated as now provided by law," and that said reports as appears on the house journal, February 15, 1901, page 605, was adopted by the senate and by the house; that during the interim between the sessions the bill was not found to be operative so far as it affected beer privileges in some cities, and that this was an attempt made by some members of the general assembly to amend the dispensary bill, so as to allow beer dispensaries to be operated within the cities of 20,000 population, and to enlarge the powers of the board of directors. Mr. Dominick took the county government senate bill (No. 531) and, after having stated his purpose to amend this particular bill by engraving on it a provision to carry out the desires aforementioned, with others secured a conference committee report whereby the committee failed to agree, and called for a free conference committee, and on the said free conference committee there was appointed on the part of the senate W. C. Hough, Wm. Elbertson and J. T. Douglass, and on the part of the house, W. O. Tatum, Fred. H. Dominick and Thomas Butler.

That said Representative Dominick took the printed copies of the bill which had formerly been introduced in the senate and pasted them on blanks used for committee reports, so as to have duplicate copies, one for the senate and one for the house, as was customary, and took said free conference report as thus amended, having stricken out the title of the bill as originally introduced, and all after the enacting words, and inserted as the title the following:

"A bill to authorize and empower the board of directors of the State dispensary to grant permits for the establishment and operation of dispensaries for the sale of beer by retail or otherwise, in cities of over 20,000 population, and to provide for the bonding of the holders of such permits, and to appoint said dispensers."

And the following after the enacting words:

"Section 1. That the board of directors of the State dispensary be, and they are hereby authorized to grant permits for the establishment and operation of dispensaries for sale of beer by retail or otherwise, in all cities in this State of over 20,000 population; and they are further authorized and empowered to appoint the dispensers who shall conduct the said establishments.

Sec. 2. That said permit shall continue and be of force for a term of four years, unless revoked for cause by the State board of directors. And the holders thereof shall have power to manufacture, bottle and sell, by retail or otherwise, beer according to the restriction now provided by law.

Sec. 3. That the holders of such permits shall be required to give bonds in the same amount and to be approved in the same manner, as is now provided by law for bonds of county dispensers."

And presented said free conference

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